Resilience of Immigrants in the United States Recession and Recovery

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Abstract

The business-cycle argument proposes that immigrants should perform more poorly than natives in economic downturns and rebound more quickly in upturns. As specifically applied to the Great Recession, the vulnerability thesis suggests that among immigrants, the unskilled, Latinos, males, and those residing in the South and West should have been affected more negatively by the recession and more positively by the recovery, than their respective native counterparts. In this study I compare changes in unemployment and wages for immigrants and natives over the three years of recession (2006-2009) and the subsequent three years of recovery (2009-2012), drawing upon the PUMS one per cent sample from the American Community Survey (ACS) for the individual years 2006, 2009, and 2012. The results tend to support both the business-cycle scenario and the vulnerability thesis, with a twist. Relative gains by immigrants in the Recovery exceeded their losses from the Recession, and less-vulnerable immigrant groups improved their position over natives during both the recession and the recovery. The relatively better employment position after the recession as opposed to before, in which immigrant unemployment drops more in the recovery than it rose in the recession, I refer to as the immigrant-unemployment ratchet - a repeating process dating back to the early 1990s. A shift-shares analysis indicates that immigrants' employment losses in the Recession were due both to their sectoral concentration and their lack of competitiveness relative to natives within sectors. In the Recovery their employment gains were overwhelmingly due to their greater competitiveness and employability within sectors. The consideration of regions of origin and destination give this study a geographic dimension that is absent in most studies in this literature.

Keywords: Great Recession; immigrants; business cycle; vulnerability thesis; immigrant unemployment ratchet; United States

1. Introduction

The Great Recession, the broadest and deepest since the Great Depression, began in the US and spread outward with lasting effects on employment and income worldwide. By its official end in 2009, US unemployment rates had doubled compared to 2006, and wages had virtually stagnated. Bureau of Labor Statistics data show that since 2009 the US unemployment rate has steadily dropped, reaching 4.3% in May 2017 - below the rate of 4.4% in May 2007 prior to the recession.

The period from 2006 to 2012 covered in this study exemplifies one of many business cycles that have occurred historically (Dicken 2015, 77-79; Altug 2010, 1-3) - a business cycle being defined as "a cycle or series of cycles of economic expansion and contraction" (Oxford Dictionaries 2016). In business cycles since 1990 immigrants suffered more economic hardship than natives in recession but rebounded faster than natives in recovery (Orrenius and Zavodny 2009, 10; Papademetriou et al. 2011, 28). This was also the expectation for the Great Recession. Furthermore, based on the

"vulnerability thesis" (Carrasco and Perez-Garcia 2015; Papademetriou et al. 2011; Bratsberg et al. 2006), the Great Recession should have disproportionately distressed immigrants who were unskilled, Latino, and male, and those living in the West and South census regions (Papademetriou et al. 2011, 42-51; Hughes and Seneca 2010), relative to their native counterparts. Research on the Great Recession (to be reviewed below) has basically corroborated the business cycle scenario and the vulnerability thesis, but questions remain unanswered since relatively little research has emerged on the recovery. Did the recovery restore immigrant/native unemployment and wage gaps found prior to the recession? Among immigrants, were the unskilled, Latinos, males, and those residing in the South and West affected more negatively by the recession and more positively by the recovery, than their respective native counterparts? Were immigrants in the recession hurt by their embeddedness in certain occupational sectors and enclaves? In the recovery did they gain from this same situation - or did they benefit from their greater flexibility and employability than natives (an argument I refer to as the "flexibility thesis"), regardless of the sectors they were in?

I address these questions in the current study, making use of the PUMS 1% population sample for the entire US for the years 2006, 2009, and 2012 - including years before, during, and after the recession. First, I investigate the literature on business cycles and the vulnerability thesis, as applied to the Great Recession and initial recovery from that recession in the United States. Next, I lay out the questions to be pursued, the nature of the PUMS sample, and the definitions of variables in the analyses. The results follow, in three parts: unemployment and wages for immigrants and natives over the recession and recovery; the same variables broken down by skill, occupation, country of birth, census region of residence, and gender; and a shift-shares analysis of immigrant unemployment changes in both recession and recovery, followed by a brief return to the literature for an explanation of the trends. Finally, I provide a summary and perspective on immigrant tribulations and aspirations in light of these results.

2. Immigrant Economic Resilience in the US Recession and Recovery

In the 1990s and 2000s the migration literature revealed a dichotomy in socio-economic mobility of the foreign-born labor force in the United States. On the one hand, migrants including most Cambodians, Laotians, Central Americans, Africans, and Mexicans were seen as having limited chances for upward mobility (Portes and Rumbaut 1996, 57-92 and 242-256; Alba and Nee 2003, 41-58 and 106-107; Lopez 1996; Ortiz 1996; Smith 2001). On the other hand, this pessimism did not extend to Chinese, Koreans, South Asians, and Europeans, for whom indicators of income, education, and occupational status actually placed them above the native-born, and whose prospects were seen as far better (Kibria 2002, 11, 131-32; Min and Kim 1999; Schlesinger, Jr. 2005).

This dichotomy in socioeconomic mobility for these two groups was widened by the economic crisis of 2007-2009 (Sirkecki et al. 2012). The unskilled group, composed disproportionately of Latinos and Africans, lost position to natives, while the skilled group, largely Asians and Europeans, held or gained position. Overall, the losses of the unskilled group exceeded the gains of the skilled group over this period (Papademetriou and Terrazas 2011). Before examining this ethnic/skills dichotomy between these two groups, however, we focus on immigrants vs. natives overall in recent decades, and how these two groups weathered the Great Recession.

3. Immigrants and the Business Cycle

Fluctuations in US unemployment and wages from the early 1990s through the Great Recession and beyond tend to support the business cycle scenario. Regarding unemployment, Orrenius and Zavodny (2009, 8-9), examining quarterly Current Population Survey (CPS) data, show how during the growth period of the 1990s immigrants narrowed their unemployment gap with natives, until recession (triggered by the dot.com and internet busts in 2000 and the terrorist attacks in 2001) widened the gap once more. During the transitory recovery of 2003-2006, their research shows that the immigrant unemployment gap resumed its decline (in fact immigrant unemployment dropped below that of natives). The Great Recession of 2007-2009 (a cascading sequence of crises in housing, finance, and automobile manufacturing that resulted in a leveling off and then decline in GDP growth and a doubling of the unemployment rate) saw the immigrant advantage deteriorate once again (Hughes and Seneca 2010). Further analyses of CPS data for the Recession period (Aysa-Lastra and Cachon 2012; Kochhar et al. 2010, 2; Papademetriou and Terrazas 2011, 42-43) confirm the deterioration of the immigrant advantage with the onset of the Great Recession, in support of the business cycle

scenario.

Analyses of the Recovery, just beginning to emerge, tend to validate the business cycle scenario as well. Kochhar et al. (2010) document a reversal of fortunes between 2009 (the last year of recession) and 2010 (the first year of recovery), such that the unemployment rate for immigrant workers fell 0.6 percentage points while that for natives rose 0.5 points. Aysa-Lastra and Cachon (2012, 31), using Bureau of Labor statistics data, show that between 2009 and 2011 the US unemployment rate for workers overall increased by 0.2 points (from 9.0 to 9.2) whereas it decreased by 0.9 points (from 11.3 to 10.4) for immigrants. Orrenius and Zavodny (p. 9) explain this long-term progress in terms of two demographic forces: (1) immigrants who arrived in the 1980s and 90s were entering their prime working years, while (2) natives, by contrast, were "aging out" of the workforce (see Ellis et al. 2014).

A more nuanced analysis and explanation is what I refer to as the "immigrant unemployment ratchet effect" - a corollary to the business cycle. A ratchet enables movement in one direction but inhibits its movement in the opposite direction. Closer inspection of immigrant success in lowering unemployment over the past two decades in the US suggests such a ratchet and its motivation (Figure 1). This graph shows trends in immigrant minus native unemployment between key years in recent business cycles (1994, 2001, 2003, 2006, 2009, and 2016). Negative numbers indicate that immigrant unemployment dropped below native unemployment. The numbers on the graph are differentials rather than actual unemployment rates, so for example in 1994 the unemployment rates for immigrants and natives were 8.5 and 6.0, respectively (immigrants 2.5 percentage points above natives) and in 2001 the respective rates were 5.0 and 4.7 (immigrants .3 above natives). The downward trend of this figure tells us something quite important. Immigrants lowered their unemployment gap during boom and recovery periods, and the setbacks they encountered in subsequent recessions were not enough to erase their previous gains (Fix et al. 2009). It is a modified ratchet - there is some slipping backward, but it is more than compensated by forward surges.

The ratchet effect may be observed in other fields of study. In economics, it refers to a situation in which consumers facing hard times are reluctant to reduce their consumption, due to their commitment to maintaining a prior level of living (Baghestani and Kherfi 2015). In policy studies, it involves the renewal of certain policies once they have gained a foothold - for example the privatization of public education, whose

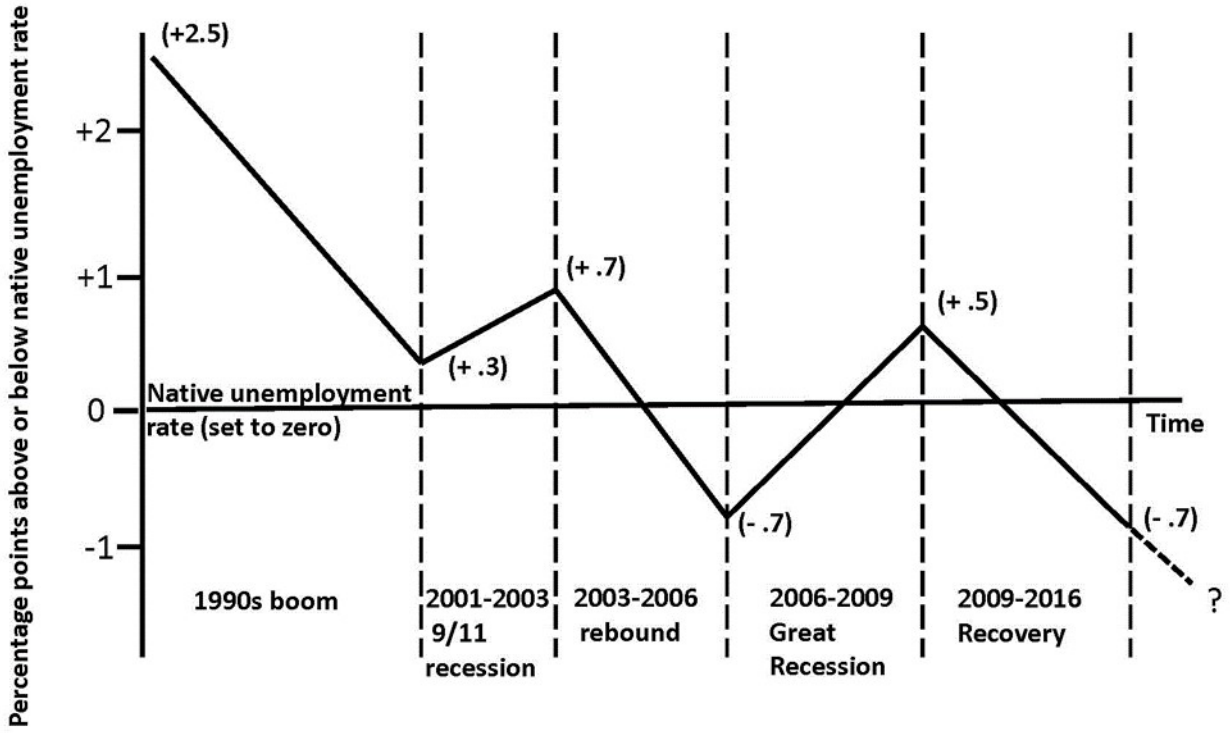

Figure 1. The Immigrant Unemployment Ratchet: The US immigrant unemployment rate relative to natives over time (unemployment figures from Orrenius and Zavodny 2009; and BLS 2003+)

initial appeal is based on free choice and whose subsequent allure is that it promises minority empowerment and it saves government money (Ball 2008). In cultural anthropology, the ratchet effect involves the cumulative nature of learning such that one tends not to lose cultural information but continues to gain it (Tennie et al. 2009). In all these instances, an individual or social group makes significant efforts to gain success, quality of life, money, and so forth, and having gained these, is reluctant to give them up. I argue that immigrant advancement fits the ratchet model as well.

Regarding wages, the earnings gap changed relatively little between immigrants and natives up until the Great Recession. Then, between 2006 and 2009, median real wages (correcting for inflation) showed slight gains for natives and slight losses for immigrants (Papademetriou et al. 2011, 49-51) - supporting the business cycle. By the end of the recession in 2008-2009, both immigrant and native earnings were beginning to grow, suggesting an immigrant rebound of sorts, although in the first year of the recession this rebound did not materialize (Kochhar, 2010).

4. Immigrants, Vulnerability, and Flexibility

Immigrants did more poorly than natives in the Great Recession; the reasons for this will now be investigated. A detailed articulation of the forces in immigrant performance in this recession suggests what I will refer to as the "vulnerability thesis." This thesis states that the worsening of the unemployment and income position of immigrants in the labor force was due not to their status as immigrants per se, but to their representation in reference groups particularly at risk - the unskilled; manual/personal service workers; Latinos; those who resided in certain US regions; and men.

(1) The unskilled (usually defined in terms of low educational levels) were seen as more vulnerable basically because their skills were interchangeable with those of other workers and thus they were more easily displaced (Aysa-Lastra and Cachon 2012, 13; Cushing 2011; Fix et al. 2009; Orrenius and Zavodny 2009; Papademetriou and Terrazas 2011, 43).

(2) Workers employed in manual and personal service jobs (in agriculture, construction, labor-intensive manufacturing, personal services, food preparation, etc.) tended to be unskilled, and their jobs were often cyclical or seasonal (Gentsch and Massey 2011; Martin 2009; Orrenius and Zavodny 2009, 26-27; Papademetriou et al. 2011, 7). They fared worse in the recession than those in the professional and administrative occupations - the "creative class" (Gabe 2006).

(3) Latinos (those born in Latin America - including Mexico, Central America, the Caribbean, and South America) were viewed as more vulnerable owing to their relative youth, low socio-economic status, and tendency towards undocumented status. Regarding the latter, Passel (2011) has estimated that 57% of Hispanic-origin adolescents in 2010 were unauthorized, and various studies have expounded upon the difficulties that this presents for them in finding jobs and achieving middle class economic status (Aysa-Lastra and Cachon 2012; Gonzales 2011; Gonzales and Chavez 2012; Hagan et al. 2011; Jeffries 2014; Soto 2012).

(4) Workers in certain regions were more vulnerable (Hughes and Seneca 2010; Ellis et al. 2014), because the industrial structures of these regions favored manual and personal service jobs or because the political climate there was unfavorable to immigrants. One census region, the US South, stood out in both respects. ACS data (ACS 2006) reveal that the South and West had 19% more manual and personal service jobs than the rest of the country. The southeastern states were the most politically restrictive towards immigrants, prohibiting drivers' licenses or in-state college tuition for undocumented residents; requiring e-verification by employers; and exhibiting racism at the community level (Bailey 2005; Torres et al. 2006; Bump 2006; Winders 2006). Not coincidentally, these states had the most pronounced increases in Latino immigration between 2000 and 2010 (Jones 2010).

(5) Males were more vulnerable than females because they were concentrated in sectors most strongly impacted by recession - construction, management, finance, and related jobs (Papademetriou and Terrazas 2011, 46; Aysa-Lastra and Cachon 2012).

The reasons for the proposed positive performance of the foreign-born in the Recovery are expressed in what I will refer to as the "flexibility thesis." This thesis holds that some of the same characteristics that rendered immigrants more vulnerable to recession made them more flexible in recovery - their representation in labor-intensive services and manufacturing, including groups (particularly Latinos) that were let go as the economy soured but hired readily as it improved (Papademetriou and Terrazas 2011, 28). The willingness and ability of immigrants to shift occupations, partly fueled by a lack of access to unemployment benefits, was arguably a prime factor in their employability. Their willingness to work for less pay was also attractive to employers struggling to recover from economic hard times (Tilly 2011). Undeniably, their skills and energy were also part of this attractiveness (The Economist 2011).

Did immigrant unemployment drop in the Recovery because many unemployed immigrants simply returned home, thus lowering the unemployment rate of those immigrants left behind in the US? Or, flipping the question, did immigrant unemployment drop because many (contractually) employed immigrants entered the US? This (latter) question is especially germane. Early in the Recovery, undocumented leavers (chiefly Mexican) numbered some 250 thousand per year (mainly voluntary: Passel et al. 2012; Barrera-Gonzalez 2015), but "guest workers" or temporary migrants numbered close to 2.5 million per year (Massey 2012). The leavers, to the extent they were unemployed (and this is not known), would have exerted a downward effect on unemployment. But the temporary immigrants - laborers, investors, company transfers, and NAFTA professionals (Massey 2012), who were employed upon arrival - would have had a far greater effect on lowering unemployment. Finally, the landing of jobs by immigrants already here was important as well. Early in the recovery the immigrant-stock labor force outnumbered the new entrant labor force by a factor of about five to one (Massey 2012; BLS 2010 2012).

Can the term "flexibility" encompass all these groups? I argue that it can. For both new entrants and immigrant stock, flexibility is measured in terms of their willingness to take and stay in jobs that are short-term or high risk, low-paying or with uncertain gain, as well as susceptible to prejudice and discrimination from the majority culture (Gleeson 2009; Murdock 2008). Both cohorts share certain traits such as their need to work to support their families, their inclination to accept less-attractive jobs or high-risk jobs, and the lack of a safety net if they fail. These traits indicate flexibility. As with any longitudinal cross-sectional analyses, including many other studies using the US Census, there are always problems with inferring behaviors of such cohorts, but in this case, the inference of immigrant flexibility is backed by research (Tilly 2011; Orrenius and Zavodny 2009; Papademetriou et al. 2011).

In summary, it might be argued that the main problem for immigrants in the recession was the combination of low personal capital coupled with embeddedness in occupational sectors and regions that did poorly. The major benefit that they capitalized on in the recovery was their willingness and ability to take temporary jobs with poor working conditions - factors that made them more competitive vis a vis natives. However, these arguments are still unproven. We move now to discussion of the methods (including shift-shares analysis, used to address the assertions in the last two sentences) we use to address immigrant resilience in recession and recovery.

5. Methods

In the analyses below, I compare unemployment and income changes for immigrants and natives for the three years of Recession (2006-2009) and the subsequent three years of Recovery (2009-2012), to give a mirror image of the cycle. Next, I relate the changes in immigrant unemployment and income during the recession and recovery to skill level, occupational sector, country of birth, US region of residence, and gender, to ascertain whether the vulnerability thesis is upheld in the Recession and whether the ratchet effect is evident across the full cycle, in these disaggregated analyses. I then employ shift-share analysis to decompose the immigrant upturn in unemployment in the recession and its decline during the recovery, into that due to immigrants' concentration in occupational sectors that performed poorly or well (the industrial mix component) and that due to immigrants' better or worse performance than natives within sectors independent of such concentration (the competitive shares component). This procedure helps to reveal whether the poorer employability of immigrants in the recession (or better employability in the recovery) was a result of the bad (or good) fortune they experienced thanks to being in certain sectors, or to their greater (or lesser) employability/ productivity within sectors regardless of how these sectors performed overall. Finally, I return to the literature for explanations of the relative importance of these two sources of unemployment change.

6. Study Design

The data source for this study is the PUMS one per cent sample from the American Community Survey (ACS) for the individual years 2006, 2009, and 2012 for the entire US. The ACS surveys a national sample of housing units as well as group quarters, to provide single -year estimates of housing and socio-economic characteristics for counties with populations of 65,000 or more. The one-year ACS does not sample non-metropolitan areas, nor does it sample suburban counties of less than 65,000. This is a shortcoming, although it is mitigated by the facts that (1) in 2010 fully 95.2% of the immigrant population lived in metropolitan areas (Singer 2011), compared to 83.6% of the US population; and (2) and a significant majority of suburban immigrants live in counties of more than 65,000 population. In other words, despite not sampling rural immigrants, the ACS captures the great bulk of immigrants in the country. I use the ACS rather than the more commonly employed CPS (Current Population Survey) for several reasons (see Kromer and Howard 2010), chief among which is its larger sample. The annual ACS sample is c. 3 million persons - 30 times that of the CPS sample (100,000). The CPS is thus problematical for examination of detailed subgroups (e.,g., immigrant subgroups by birthplace, occupational sector, or state) - as is done in this study. Furthermore, response to the ACS is mandatory, and its samples are taken throughout the year (see Ellis et al. 2014). Questions refer to the 12-month period previous, whereas in contrast the CPS samples are taken February to April only and refer to the previous calendar year - and therefore are not as comprehensive or current as the ACS. The 2006 to 2009 period encompasses the Recession and 2009 to 2012 encompasses an equal period for the Recovery.

Indicators for variables included in the questions above are as follows: An "immigrant" is a person residing in the country who was born outside the US or its territories. "Unemployment," measured only for those individuals older than 15 years, is the condition of not working but looking for work and available for work, during the week of the ACS survey. The unemployment rate is the number of unemployed persons expressed as a percentage of the labor force. The labor force includes those who are employed as well as those who are unemployed as defined above. "Skill level" is indicated by education and operationalized as "skilled" (completed at least some college coursework) or "unskilled" (completed no more than high school). This operationalization is conventional in the literature since education is strongly related to work in skilled vs. unskilled occupations (Papademetriou and Terrazas 2011; Orrenius and Zavodny 2009). Only those individuals ≥ 25 years old are considered. The higher age cutoff allows that an individual would most likely have finished his or her education by then; school years completed for this subgroup very likely indicates final educational attainment. This age cutoff is used only in relationships involving skill level. "Country of birth" encompasses four categories: native (born in the US), Latino foreign-born, Asian foreign-born, and other foreign-born. Based on our ACS data (2006), as of 2006 the Latino foreign-born were predominantly (80%) from Mexico and Central America; their incomes and educational levels were much lower than natives' (by 22% for income and 32% for school years completed). In contrast, the "Asian" foreign-born were largely (65%) from China, India, the Philippines, Japan, Korea, and the Middle East; and the "other foreign-born" were overwhelmingly (85%) from Europe, Canada, and Australasia; their incomes and educational levels were somewhat higher than for natives' (by 13% for income and 6% for school years). From these statistics it follows that Latinos fit the vulnerable/flexible category of workers better than Asians and Europeans. "Occupational sector" refers to a person's customary occupation based on the SOC (standard occupational classification) as defined in the US Census. A three-category occupational group is used below: (1) manual-personal service occupations (MPS) including janitors, maintenance workers, restaurant workers, construction workers, agricultural workers, personal care services workers, and cognate jobs. (2) operative/ repair/ business and social service occupations (ORS) include manufacturing workers, machinery and vehicle operators, technicians, mechanics, sales personnel, healthcare support workers, protective services personnel, etc. (3) professional and administrative service occupations (PAS) include positions in management, finance, architecture and engineering, education, research, the arts, health care, community services, media and entertainment, and similar occupations. "US region" refers to the four census regions: Northeast, Midwest, South, and West. The states composing each region are given in Figure 6.

7. Results

7.1 Immigrant Unemployment and Wages in the Recession and Recovery

Did the station of immigrant unemployment in relation to native unemployment worsen during the recession and improve in the recovery, symmetrically, as proposed in the business cycle argument; or was this process asymmetric, in keeping with the ratchet model? Was the same pattern observed for immigrant wages? The answer is revealed in a series of bar graphs (Figure 2). For unemployment, although the immigrant/ native gaps are small (note also that the base of the graphs is not zero), the large and comprehensive sample lends credibility to the results. Essentially, the ratchet model is corroborated. The position of immigrants deteriorated in the recession - their unemployment rate was 3.8% below that of natives in 2006 but only 0.5% below in 2009; by 2012, with the recovery in full swing, immigrant unemployment was 8.3% below that of natives. In other words, the cycle was asymmetric. The conclusions from the ACS data presented here generally agree with the CPS data cited by Papademetriou and Terrazas (2011, 43, Figure 7); by 2009 immigrant and native unemployment had converged; afterwards, the immigrant rate dropped below that of natives. The difference is that our data extend to 2012 and show that the immigrant/ native gap that favored immigrants before the recession favored them even more after it.

In contrast to the situation for unemployment, immigrant wages (corrected for inflation) did not show noteworthy changes relative to natives over the recession or the recovery (Figure 2). The wages gap, always strongly favoring natives, favored them even more over the course of the recession, but the changes

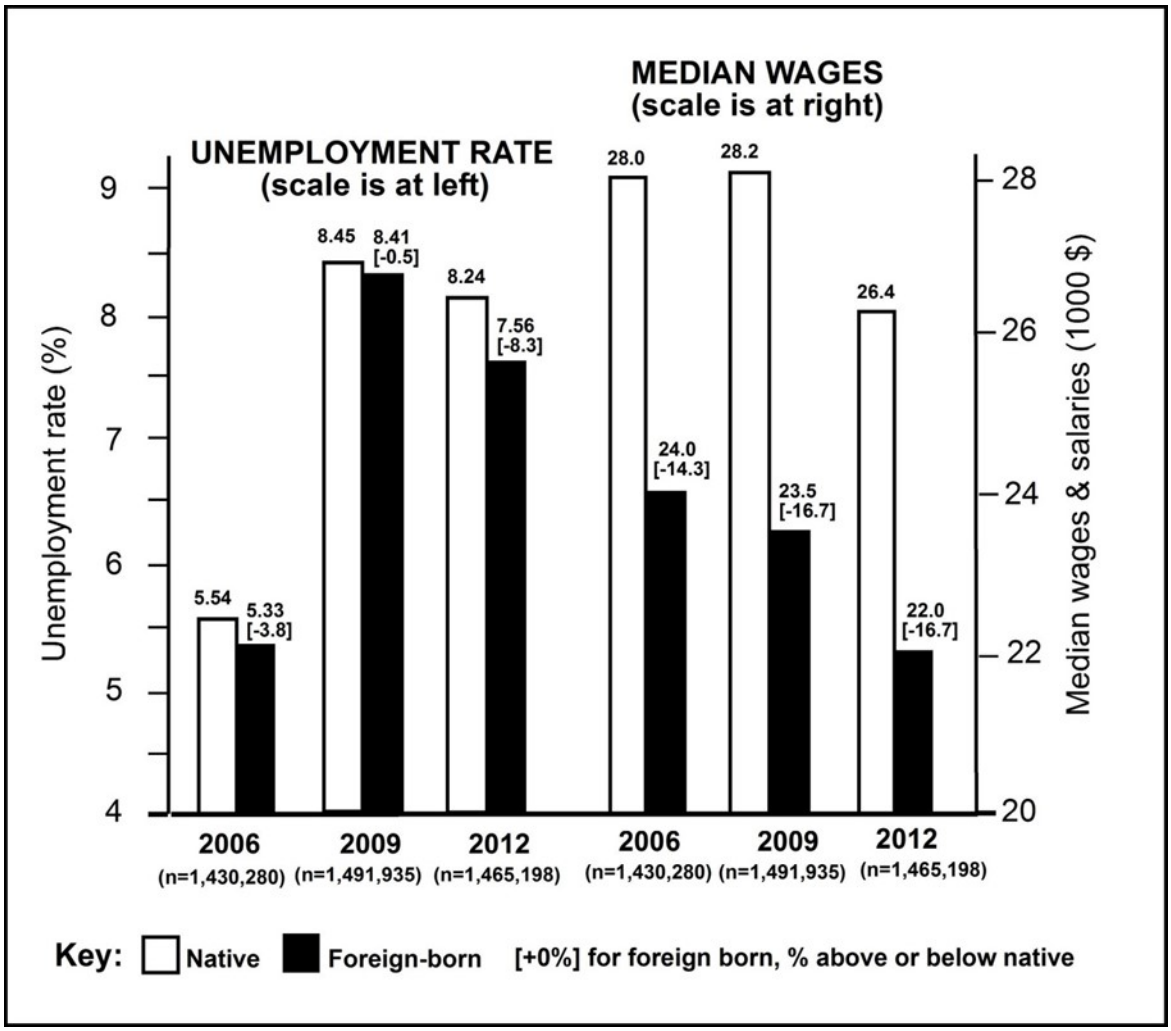

Figure 2. US unemployment rates and median wages for the foreign-born and natives: 2006-2009 (recession) and 2009-2012 (recovery). Source: Compilation from data in the American Community Survey, single-year one percent sample.

were unexceptional; the gap was 14% in 2006 and 17% in 2009. During the subsequent recovery, the wage gap did not change; it was still at 17% in 2012. This result is different from that of Kochhar et al. (2010) who found relative deterioration of immigrant wages between 2009 and 2010; however, the one-year time frame of their study, compared to the three-year span in this study, could explain the discrepancy.

Did immigrant/native unemployment and wage differentials behave in the same manner for subgroups based on different demographic criteria? We turn to this question in the next section.

7.2 The Role of Skill, Sector, Birthplace, US Region, & Gender in the Recession and Recovery

How were these factors related to the unemployment and wage position of immigrants relative to natives over the Recession and Recovery? In order to answer this question, a new type of bar graph is presented; this type has a basic similarity to that in Figure 1. Absolute unemployment rates and wages of immigrants and natives are not depicted directly as in Figure 2, but indirectly: the bars depict the percentage difference ("gap") between immigrants and natives for the different subcategories. For example, if a bar for unemployment (labelled at the left) is negative, this means that unemployment was lower for immigrants than natives on that attribute (in Figure 3, the -3 for unskilled workers in 2006 indicates that the immigrant

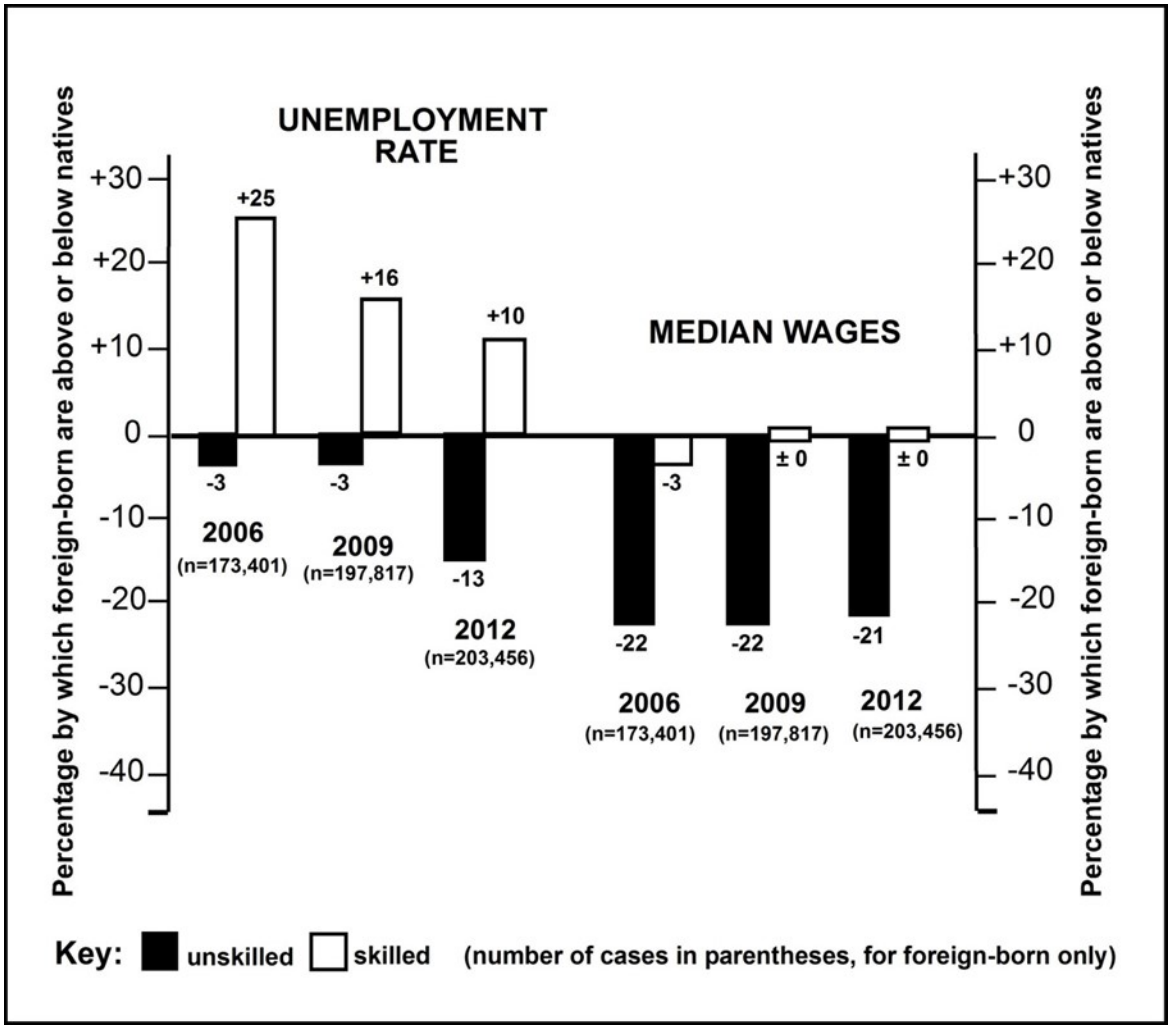

Figure 3. US unemployment rates and median wages by skill level: Percentage foreign-born are above or below natives, 2006, 2009, and 2012. Source: Compilation from data in the American Community Survey, single-year one percent sample.

unemployment rate was 3% lower for immigrants than natives - an "immigrant advantage"). If a bar for unemployment is positive, unemployment was higher for the immigrants (in Figure 1, the +25 for skilled workers in 2006 means that the immigrant unemployment rate was 25% higher than that for natives - an "immigrant disadvantage"). The bars for wages (labelled at the right) are interpreted analogously. It should be reiterated that a negative value on unemployment represents an advantage for immigrants, and a positive value represents a disadvantage; a negative value on wages represents a disadvantage for immigrants and a positive value represents an advantage. Multiple bars are constructed to show differences by year for categories of the five variables - skill level (Figure 3), occupational category (Figure 4), place of birth (Figure 5), region of residence (Figure 6) and gender (Figure 7). These procedures follow Waldinger and Feliciano (2004). If the pattern of the bars differs across categories of a variable and over the years (2006,

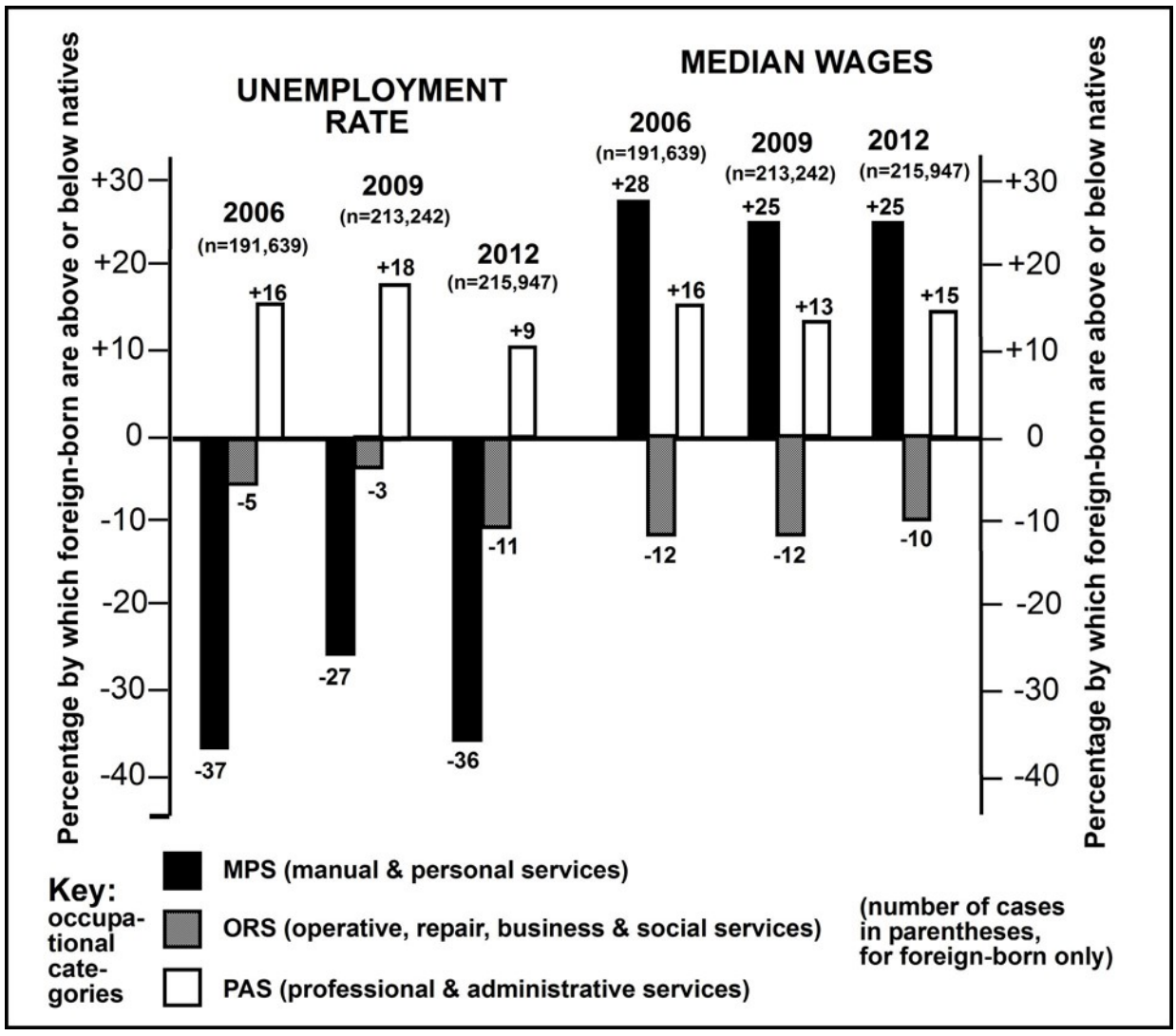

Figure 4. US unemployment rates and median wages by occupational category*: Percentage foreign-born above or below natives, 2006, 2009, and 2012. Source: Compilation from data in the American Community Survey, single-year one percent sample.

* Note: The detailed standard occupational sectors in each major occupational category are as follows: Manual and personal services: farming, fishing, and forestry; construction and extraction; food preparation and serving; building and grounds maintenance; personal care and services. Operative, repair, business and social services: installation, maintenance, and repair; production-manufacturing and operative; transportation and material moving; sales and related; office and administrative support; health care support; protective services. Professional and administrative services: management; business and finance; computers and mathematics; architecture and engineering; life, physical, and social sciences; community and social services; legal services; education, training, and libraries; entertainment, media, arts, and sports; health practitioners and technicians; military.

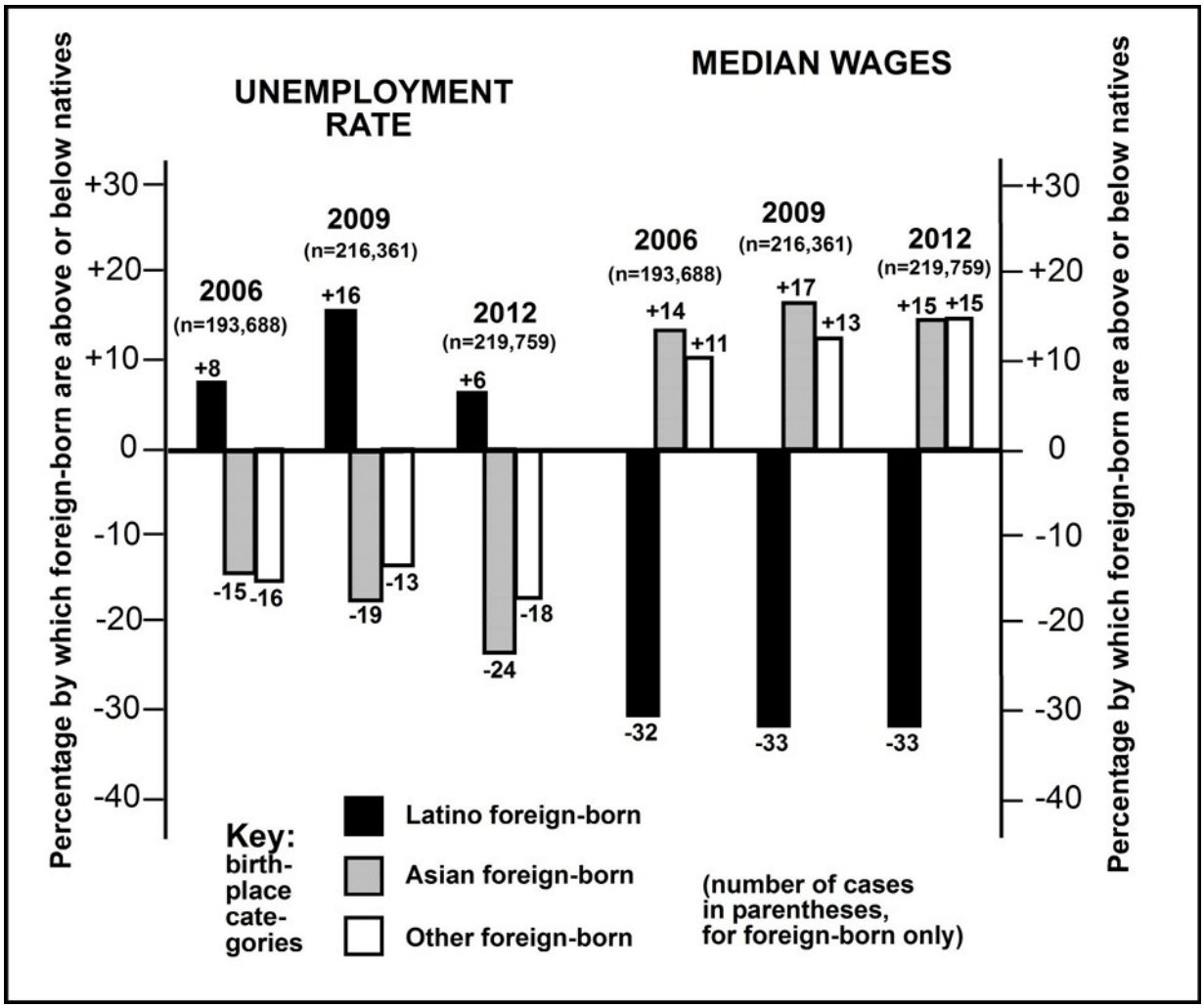

Figure 5. US unemployment rates and median wages by **region of birth**: Percentage by which the foreign-born are above or below natives, 2006, 2009, and 2012. Source: Compilation from data in the American Community Survey, single-year one percent sample.

2009, and 2012), this suggests that (based on the difference between the percentages printed above each bar) the variable was important in differentiating the performance of immigrants in relation to natives in the recession and recovery. If (for example) unskilled immigrants performed more poorly in the recession than skilled immigrants, this would support the vulnerability thesis. If unskilled immigrants performed more poorly in the recession and better in the recovery than unskilled natives, this would support the business cycle notion. This will be further clarified in the discussion that follows.

7.3 Skill level

Regarding skills, the vulnerability thesis would forecast that during the Recession, less-skilled immigrants would lose ground to their skilled counterparts, whereas the business cycle implies that less skilled immigrants would lose ground to less skilled natives. In Figure 3 it may be seen that the unskilled immigrant unemployment rate was 3% below that of natives in 2006 and again in 2009. Thus unskilled immigrants held their own relative to natives, rather than lost ground as would be predicted by the business cycle. The situation was different for skilled immigrants, whose situation improved in the recession: in 2006 their unemployment rate was 25% above that of natives, compared to 2009 when it was only 16% above. How can we best summarize these results? Basically, the unskilled did not do as well as the skilled in terms of unemployment in the recession, substantiating their greater vulnerability, as predicted. Beyond that, they did hold their own in the recession relative to natives, which goes against the business cycle notion that suggests they

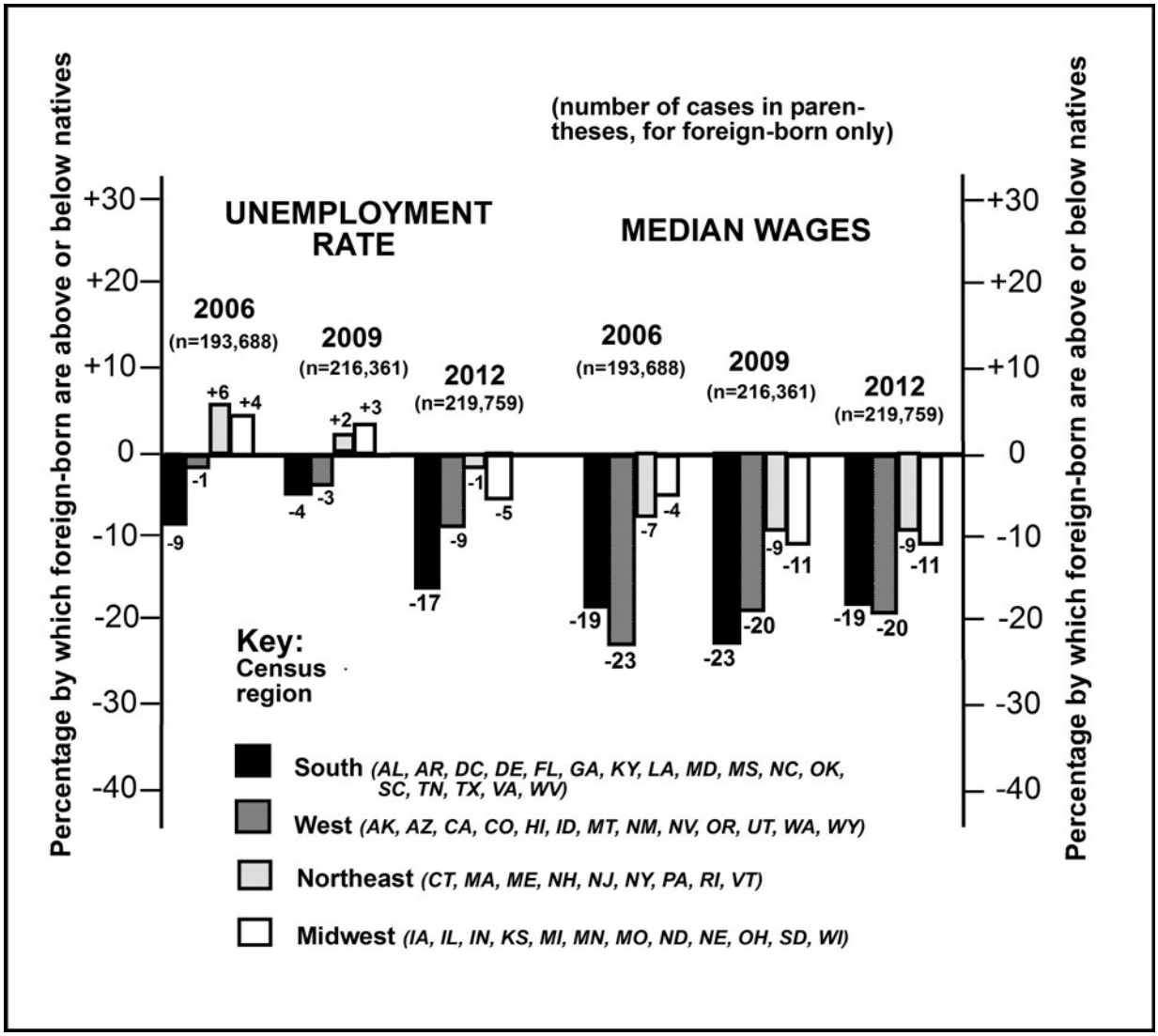

Figure 6. US unemployment rates and median wages by **region of residence (US Census)**: Percentage by which the foreign-born are above or below natives, 2006, 2009, and 2012. Source: Compilation from data in the American Community Survey, single-year one percent sample.

should have lost out. Finally, the ratchet effect is upheld, since unskilled immigrant unemployment went from 3% below natives in 2006, prior to the recession, to 13% below natives in 2012, after the recession.

In contrast to unemployment, the wages gap showed relatively little change over the recession and recovery (Figure 2). Unskilled immigrant (median) wages remained 21-22% below those for their native counterparts over the entire period, and for the skilled there was virtual parity between immigrant and native wages over the period. The surprising stability in the wage gap over the entire period 2009 to 2012 suggests that immigrant improvements in employment (just covered) did not come at the expense of income.

7.4 Occupational sector

Moving to occupational sector, the vulnerability thesis suggests that MPS occupations should have fared worse during the Recession than PAS occupations. Regarding unemployment, MPS jobs lost significant ground (going from 37% below natives to only 27% below) while PAS jobs lost little ground (going from 16% above to 18% above), so the vulnerability thesis is again accepted (Figure 4). As noted, the vulnerability thesis has nothing to say about the Recovery. Regarding the business cycle argument that there should be a rebound, it is evident that this occurred for MPS, PAS, and ORS jobs; but in two of these cases (PAS and ORS), the rebound in recovery was much greater than the relapse had been in recession. In these two cases at

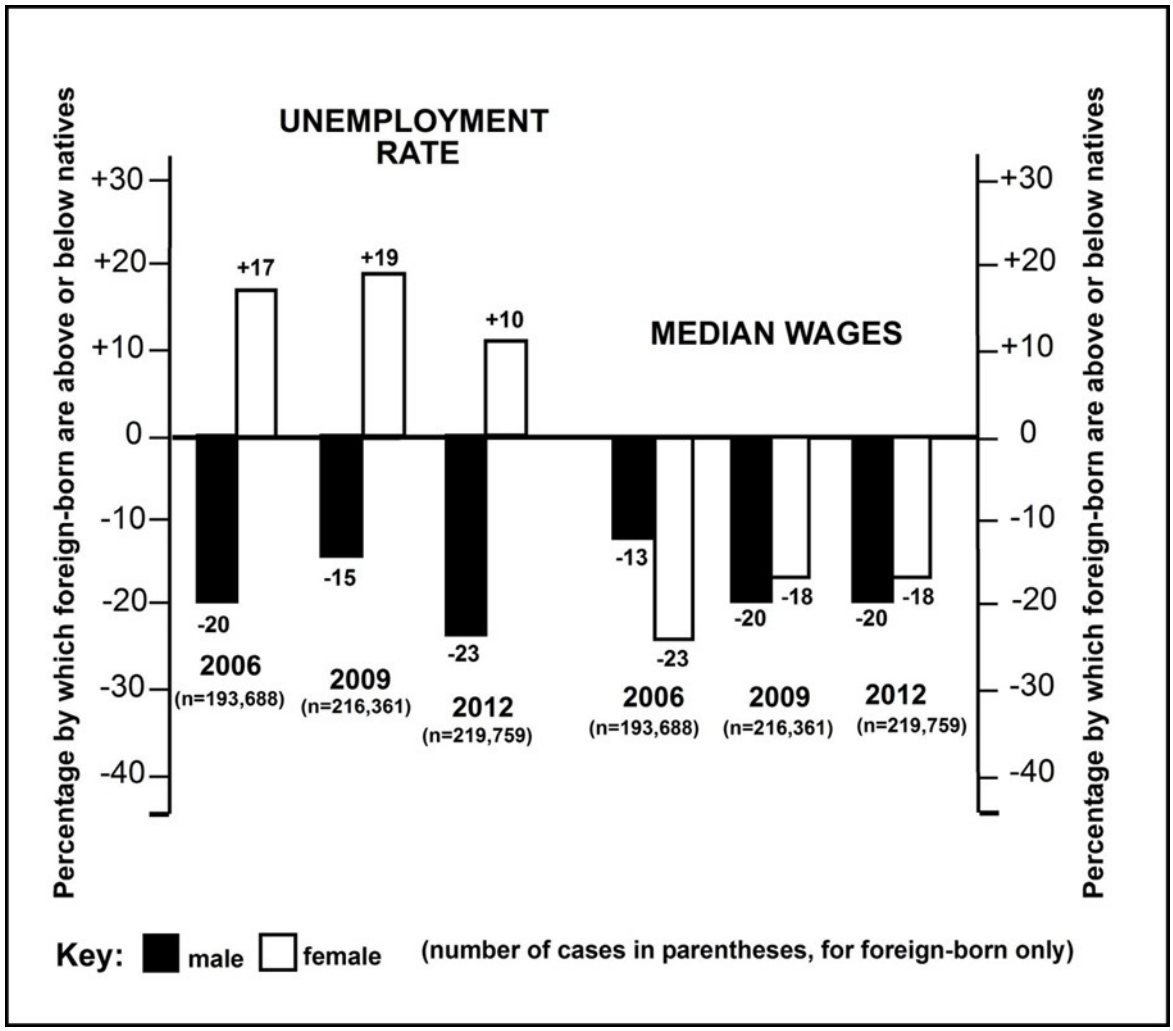

Figure 7. US unemployment rates and median wages by gender: Percentage by which the foreign-born are above or below natives, 2006, 2009, and 2012. Source: Compilation from data in the American Community Survey, single -year one percent sample.

least, the ratchet effect was evident. The wages gap over the Recession exhibited only a muted correspondence to the vulnerability thesis, for both MPS and PAS jobholders. In the Recovery, changes were comparably slight, with rebounds either slight or non-existent.

It may be noted that manual workers did more poorly in the recession (Figure 4) than did unskilled workers (Figure 3). Why? One answer is that manual workers were disproportionately involved in construction (the sector that was most vulnerable to the recession) while the unskilled were more concentrated in agriculture and food preparation (sectors that were among the least affected) (Papademetriou and Terrazas 2011).

7.5 Region of birth

Regarding region of birth, the vulnerability thesis asserts that Latinos should have suffered increasing employment and wage disadvantages in the Recession relative to Asians and "other" foreign-borns. The results strongly support this assertion (Figure 5): the unemployment rate of Latinos went from 8% above that of the native population in 2006, to 16% above in 2009, whereas Asians improved their position, and Others (chiefly Europeans) only suffered a small decline in position (relative to natives). In the Recovery, both Asians and Others improved their unemployment positions vis a vis natives, but neither of these improvements matched the "comeback" of Latinos, whose unemployment went from 16% above that of natives in 2009 to only 6% above in 2012. Latinos' experience fits the notion of the immigrant ratchet effect. The results for wages are again not as dramatic as those for unemployment, and in fact represent effective stasis.

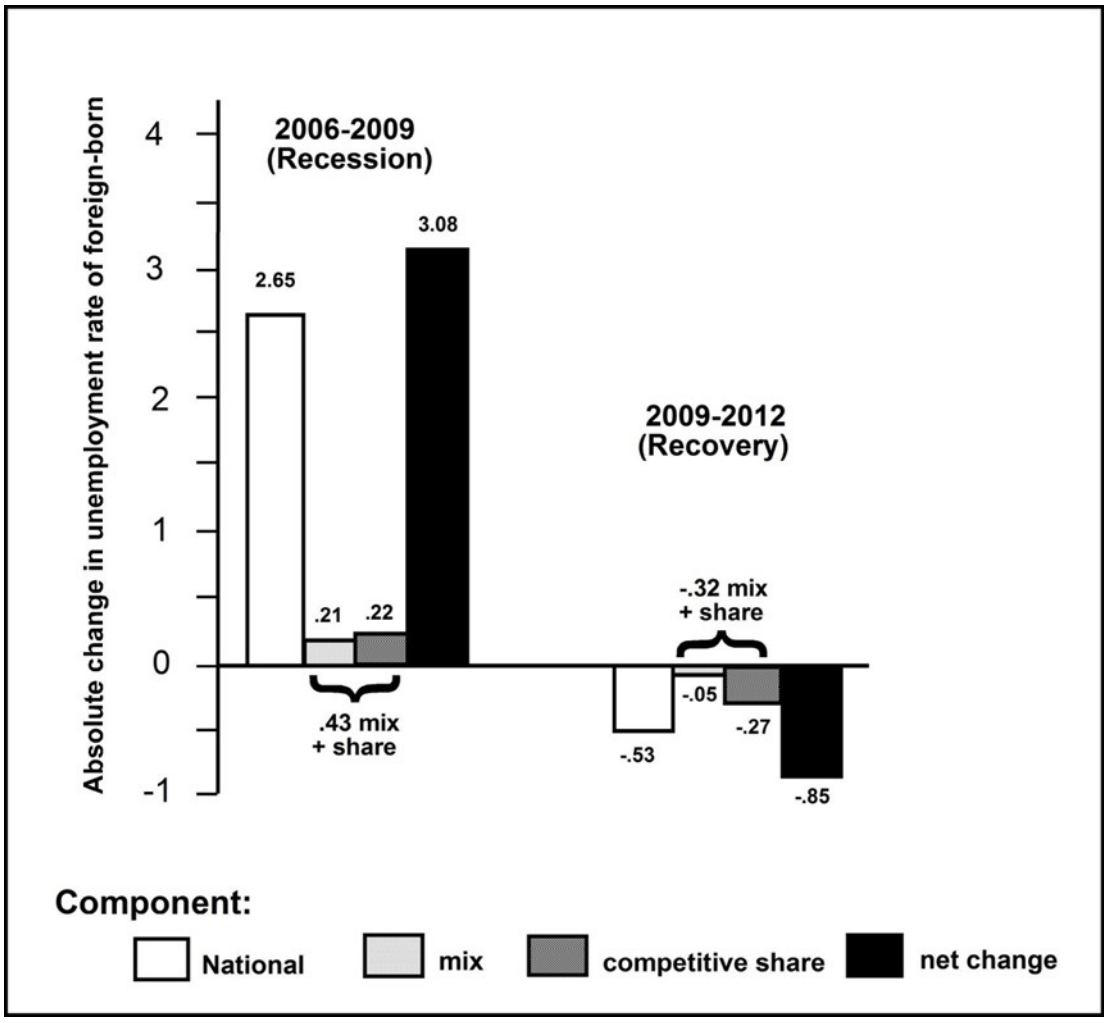

Figure 8. Shift-Share Components of Unemployment Rate Change for the Foreign-born in the Recession and Recovery. Source: Compilation from data in the American Community Survey, single-year one percent sample.

7.6 US census region of residence

We now turn to the situation of US census region of residence, in which the US South is expected to have been the most vulnerable to the Great Recession and the most responsive to the Recovery. Figure 6 verifies this expectation. Immigrant unemployment in the South suffered over the period 2006-2009, going from 9% below natives to only 4%, even as the West, Northeast, and Midwest improved their positions relative to natives over this recessionary period. Over the Recovery period, 2009-2012, all regions showed rebounds, but none were as dramatic as that for the South, which plummeted from 4% to 17% below natives. The South illustrated the immigrant ratchet effect. Wages, as expected, did not exhibit such volatility, although immigrant wages in the South wages did correspond most closely to the business cycle - dropping from 19% to 23% below natives' in the Recession and rising symmetrically to 19% below once again, in the Recovery.

The pronounced drop in unemployment for immigrants in the South in 2012 deserves further commentary. Ellis et al. (2014) find that by 2009-10, the formal end of the Recession, pre-emerging metro areas (Singer 2004) were the only ones to show gains in immigrant internal migration; these are especially represented by medium-sized metro areas of the South (e.g., Austin, Charlotte, Greensboro, and Raleigh). There is a large literature on immigrant dispersion to rural and urban jobs in this region prior to the Recession, in the late 2000s (Smith & Furuseth 2006; Winders 2006; Jones 2010). This trend was evidently resumed, post-recession.

To summarize, these two geographic analyses - of country of birth and region of residence - have revealed the clearest vulnerabilities to the Great Recession of any variables so far, and these two spatial entities, origin and destination, are inextricably bound

together. Latinos represent a disproportionately disadvantaged group regarding skill level, education, and legal status; while at the same time they uniquely fit the needs for agricultural and construction workers in the most rapidly growing US region in recent years - the US South (Smith and Furuseth 2006). Consequently, they were uniquely vulnerable in the Recession but uniquely equipped to fill employment needs in the Recovery.

7.7 Gender

Finally, considering gender, the vulnerability thesis postulates that male immigrants should lose out to females in a recession (Papademetriou and Terrazas 2011, 46-47). The results indicate a male unemployment rate 20% below natives in 2006 but only 15% below in 2009 (Figure 7). Female immigrants were less affected by the recession. These findings are consistent with the vulnerability thesis. However, for both males and females, the recovery saw gains that were greater than the previous losses, corroborating the ratchet model. Male wages in the recession showed show more variation than was the case for any of the other variables - a deterioration that matched male deterioration in employment. This double dilemma made being male the least desirable attribute during the recession. The reason for this may again (as with occupation and skill) have been immigrant male concentration in construction, manufacturing, and transportation, all of which did poorly in the recession; on the other hand, women prevailed in personal care, food preparation, and health care support, all of which did much better.

It is not the purpose of this article to attempt a full explanation (meaning further data analysis based on the ACS) for the deterioration of immigrant unemployment position in the Recession and its improvement in the Recovery, as demonstrated in the above analyses and supported by the ratchet model and more generally, the business cycle argument. Such an explanation is outside the scope of this study. However, a decomposition of overall unemployment change using shift-shares analysis, and a drawing upon the explanations by others for overall trends, will be pursued in the section below.

7.8 Towards a Preliminary Explanation of Immigrant Performance in Recession and Recovery

Regarding the decomposition of growth in immigrant unemployment in the Recession, was it a result simply of being in sectors that performed poorly; or was it because immigrants possessed few competitive advantages within sectors across the board? Conversely, was unemployment decline in the Recovery a function of immigrants being in sectors that performed better, or was it because of their competitive advantages within sectors generally? These questions are fundamental to gain an understanding of how the foreign-born lost ground to natives in recession but outperformed them in recovery. If immigrants were amassed in certain sectors but possessed no competitive advantages over natives in those sectors, then they were complementary to the native labor force. On the other hand, if they possessed competitive advantages over natives within sectors, they were substitutable for the native labor force. Recent studies are ambiguous on which of these processes have most influenced immigrant/native labor market interactions in the past. Although not explicitly about recessionary cycles, studies by Borjas, Freeman, and Katz (1992), Catanzarite (1993), Jaeger (1995), Okkerse (2008), and Wilson and Jaynes (2000) side with the substitutability thesis; but evidence for complementarity is found in Borjas (1994), Smith and Edmonston (1997), and Findlay et al. (2010).

The analysis of employment shift and shares offers a framework for resolving these questions. The shift-share model is often used to decompose local growth in employment that derives from (1) overall national growth; (2) growth due to the sectoral mix of a local economy (whether the local economy is heavily represented by sectors that performed better nationwide); and (3) growth due to the competitive advantage of local production factors over national production factors within sectors of the economy. For examples of recent applications of shifts and shares to income or employment growth for regions, see Artige and Van Neuss (2014), Gabe (2006), and Ray et al. (2012). One study (Hotchkiss et al. 2012) deals specifically with the Great Recession, although it does not focus on immigrants. The authors find that dropping out of the labor force to return to school was not specific to certain occupations or skill sets; (imposing the terminology of shift-share) the national component dominated and neither industrial mix nor competitive shares played much of a role in unemployment for this subgroup.

In this study I compare immigrant to overall unemployment rate change in the US during the Recession and Recovery. I separate this change into national, mix, and share components, and I consider 23 sectors, or standard detailed occupational categories from the ACS. For example, consider that between

2006 and 2009 the immigrant unemployment rate increased 3.08 percentage points (from 5.33 to 8.41), whereas it would have increased only 2.65 percentage points if unemployment had increased as for the US labor force. Evidently, there was something about immigrants that increased their unemployment rate change .43 percentage points over and above the national trend. What was that something? Was it simply that immigrants were concentrated in sectors that did worse (the "mix" component) or was it their lack of employability within sectors (the "competitive share" component)?

Subsequently, between 2009 and 2012 the immigrant unemployment rate decreased 0.85 percentage points (from 8.41% to 7.56%) whereas it would have decreased only 0.53 percentage points if unemployment had declined as for the US labor force. Something about immigrants pushed their unemployment rate change .32 below the national trend. What was this something? Was it that immigrants were concentrated in sectors that did better (the "mix" component) or was it their greater productivity and employability within sectors (the "competitive share" component)? To answer these questions, unemployment change in each period is decomposed into (1) the change due to national trends for all labor force members (the "national" component); (2) the change due to immigrant concentration in certain occupational sectors nationally (the mix component); and (3) the change due to immigrant productivity or employability within these sectors (the competitive shares component). Both immigrants and natives are considered in all three components because (consistent with shift-shares methodology) the base-year immigrant unemployment rate is increased or reduced by national and sectoral rates pertaining to the U.S. labor force. The sum of these three components equals the net change in the immigrant unemployment rate over the period.

The results indicate that in the Recession, the national trend accounted for 86% of the rise in immigrant unemployment in this period (2.65 of 3.08 percentage points), suggesting that the Recession was indeed pervasive and cut across groups and sectors. The balance of the rise in unemployment (.43 of the 3.08) was split evenly between mix (.21) and share (.22) components. Immigrants were not only swept up in the Recession along with everyone else, but neither complementarity nor substitutability prevailed. Some immigrants lost out due to their embeddedness in hard-hit sectors while a comparable number lost out due to their vulnerability based on skills, ethnicity, and other factors. In the Recovery, the national situation was responsible for just 62% of the reduction in immigrant unemployment (-.53 of the -.85), indicating that sectoral and personal factors mattered more than they did in the Recession. Most salient in this regard is the dominance of the competitive share component (-.27 of the -.32, or 84% of the remaining decline in immigrant unemployment).

What happened between 2009 and 2012 to turn around the fortunes of the foreign-born? How did they become more competitive in the Recovery than they had been in the Recession? Did the foreign-born, more than natives, relocate to states and cities that were less-impacted by the recession? Research by Ellis et al. (2014) using ACS data for 2005-2010 suggest that this did not necessarily happen; interstate migration rates for immigrants over the period actually dropped below those for natives. Notably, the post-recession year in their study (2010) exhibited a pronounced drop in interstate migration for immigrants from the last recession year (2009). Of course, this does not prove that immigrant relocation, however reduced, was not to states less impacted by the recession. Further analysis of our ACS data (2009 2012) does reveal that the foreign-born moved into sectors that recuperated faster from the recession. Between 2009 and 2012, there was a shift of immigrants out of sectors that performed poorly in the recession into those that performed well; for the native-born, there was a shift out of all sectors, regardless of how they performed in the recession. These data support the sectoral mobility of immigrants and are in keeping with the flexibility thesis.

As with most "decomposition" analyses, the above results articulate, but do not really explain, the observed behaviors. What is implied by the shift-shares analysis is that the recession and the recovery were different: during the recession immigrants were impacted more than natives in significant measure because they were embedded in occupational sectors that suffered most. But during the recovery, immigrants did better than natives overwhelmingly because of their flexibility and competitiveness. I therefore return to the literature for an explanation of how these two scenarios may have played out to change the fortunes of immigrants.

Immigrants occupy niches in certain sectors of the US economy (Waldinger 1995; Wright and Ellis 2001; Ellis et al. 2007) - a condition that based on the analyses just detailed, worked to their disadvantage in the Great Recession. Where immigrant communities possess strong social solidarity, economic specialization, and geographic concentration (whether by choice or by structural discrimination), ethnic enclaves come into

being - as in the classic cases of the Cuban enclave in Miami (Portes and Bach 1985) and Chinese and Korean enclaves elsewhere (Logan et al. 2003). These niches and enclaves provide social capital that facilitates job acquisition and progress up the economic ladder (Ellis et al. 2007; Massey et al. 1998), as argued in the theory of economic embeddedness wherein hiring decisions are based on social relationships of trust, dependability, security, and reciprocity rather than on strict economic rationality (Granovetter 1985; Uzzi 1996; Waldinger 1995). Over the past few decades in the US, labor immigrants have increasingly filled certain manual and personal service niches, including construction, manufacturing (clothing, food processing), transportation, agriculture, and tourism. Less-recognized is immigrant prevalence in professional and scientific occupations in computer science, the physical and life sciences, and engineering (Castles et al. 2014, 244; Logan et al. 2000; Logan et al. 2003; see also Findlay et al. 2010). Unfortunately, all of the occupations just mentioned were among the most adversely affected by the Great Recession, as measured by unemployment growth and corroborated in ACS data for 2006 and 2009. This recession began in finance and housing and spread to manufacturing and tourism, thus affecting sectors at both ends of the occupational spectrum (Papademetriou and Terrazas 2011, 35-37). Immigrants embedded in ethnic economies were unable to leave them in the short run and were engulfed by the recession to a greater degree than were natives.

In the Recovery, the sectors that had done poorest in the recession now did best (the simple Pearson bivariate correlation between unemployment rate changes across the states in the two periods is -0.874). It might be supposed that the foreign-born were swept up in these sector-specific rebounds, but the shift-share analysis shows otherwise - across all sectors, immigrants became more employable for reasons that had to do with their competitiveness. Scholars in the field of migration economics and demography (Tilly 2011; Orrenius and Zavodny 2009; Papademetriou et al. 2011) have hypothesized that immigrants had become more substitutable for natives because they were more occupationally flexible during the recovery. This flexibility, according to these authors, includes willingness to move into jobs elsewhere.

There are further indications of the flexibility thesis and the substitutability of foreign for domestic workers, from a past recession. In the economic slump immediately after 2000/2001, manufacturers turned to temporary workers to help counter the reduction in sales (Ip and Gold 2002; see also Okkerse 2008). Then, as during the 2009-2012 period, temporary workers became a more integral part of the formal labor force (see Massey 2012) and were retained rather than shed as surplus labor.

8. Discussion

Past research (Aysa-Lastra and Cachon 2012; Kochhar et al. 2010; Orrenius and Zavodny 2009; Papademetriou and Terrazas 2011) reveals that immigrant losses in recessions have tended to exceed those of natives, while in recovery their gains have exceeded those of natives. Regarding the Great Recession, research implies that immigrants who were unskilled, in manual and service occupations, Latino, residing in the South and West, and male, were more vulnerable to job and income losses in relation to natives - the vulnerability thesis (Carrasco and Perez-Garcia 2015; Papademetriou et al. 2011; Bratsberg et al. 2006). In recovery, these same groups were expected to rebound faster than natives owing to their willingness to work - what I term the flexibility thesis. Little research has emerged on immigrants in the recovery.

This study examines these implications and expectations through an analysis of the PUMS 1% population sample for the entire US for the years 2006, 2009, and 2012. The results show that relative to natives, immigrants' employment and wage positions deteriorated in the recession, and improved (or in the case of wages, held constant) in the recovery, basically in keeping with expectations from the business cycle. The vulnerability thesis, which pertains to the recession only, is also supported with regard to unemployment of all the groups noted above except for the unskilled; but not with regard to wages, which were relatively stable for all groups over the period 2006-2012.

A major contribution of this article is the finding that immigrants did not just restore their unemployment position (in relation to natives) from before the recession; they improved on it, corroborating the immigrant unemployment ratchet model by which it can be shown that despite setbacks, immigrants have lowered and reversed their unemployment differential with natives over the past twenty-five years. Immigrant unemployment went from 4% below natives prior to the recession (in 2006), to 8% below after the recession (in 2012). For the unskilled the figures were 3% below before and 13% below afterwards; for immigrants in the South the figures were 9% below before and 17% below afterwards. In other words, the recovery was of disproportionate benefit to immigrants, including those

groups that were most negatively affected by the Recession.

Another important finding is that the dramatic rebounds for "vulnerable" groups tend to obscure the steady gains for less-vulnerable groups, both during and after the recession. For example, unemployment for skilled immigrants dropped from 25% above natives in 2006 to 16% above in 2009 to only 10% above in 2012; for the Asian foreign-born, unemployment dropped from 15% below natives in 2006, to 17% below in 2009 to 24% below in 2012. For foreign-born residents of the West, unemployment dropped from 6% above natives in 2006, to 3% below in 2009, to 9% below in 2012. In a nutshell, the immigrant unemployment ratchet did not pertain to all immigrant subgroups; there were those that (for whatever reasons) increased their employability in relation to natives right across the recession and recovery. Nor did this come at the expense of their income, which was virtually unchanged or slightly increasing over this period. For them, the Great Recession scarcely existed. Of course, unemployment rates for these subgroups were still higher in 2012 than they were in 2006. I am speaking in relative rather than absolute terms; The Recovery has taken another four years beyond 2012 to reduce national unemployment to 2006 levels.

The shift-shares analysis indicates that in the recession, the greater increases in unemployment for immigrants compared to natives was a dual function of immigrant concentration in occupational sectors that performed worse and lack of competitiveness of immigrants relative to natives within sectors. In the recovery, on the other hand, the greater decrease in unemployment for immigrants was overwhelmingly due to their greater competitiveness and employability. Several authors (Tilly 2011; Orrenius and Zavodny 2009; Papademetriou et al. 2011) suggest that this employability was owing to their flexibility, energy, and willingness to work. Further analysis of our ACS data suggests that their sectoral mobility contributed to this greater employability.

Broadly speaking, improvement in employment prospects and achievement of income stasis are only the first steps on the ladder leading to economic assimilation for immigrants in the United States. But if they can weather a recession as severe as the Great Recession and come out ahead, then as a group they should be able to adjust to most economic exigencies in the future. For many, however, the key will be whether political barriers to their entry, legalization, advancement, and assimilation are removed - the failing of which will hurt not only them, but also their host country.

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